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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,818	11/25/2003	Seong Hyun Kim	2013P135	9371
8791	7590	12/09/2004	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN			QUACH, TUAN N	
12400 WILSHIRE BOULEVARD			ART UNIT	
SEVENTH FLOOR			PAPER NUMBER	
LOS ANGELES, CA 90025-1030			2814	

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/722,818	Applicant(s) KIM ET AL.	
	Examiner Tuan Quach	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/25/03</u> . | 6) <input type="checkbox"/> Other: ____.  |

### DETAILED ACTION

The drawings are objected to because Fig. 1 does not have the legend Prior Art; see the specification page 2 line 31.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

"et al." is omitted for convenient prior art referencing, e.g., Hack for Hack et al.

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Claims 1-5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Hack.

Re claim 1, Hack, 4,996,573, teaches a vertical structure thin film transistor comprising a stacked structure of a suitable substrate such as glass substrate 10, a first electrode conductive gate electrode layer 12, a dielectric thin film 14 of gate dielectric layer, a second electrode for source fingers 16, a semiconductor thin film 24, and a third electrode 26. See Fig. 1 column 3 lines 40-63.

Re claim 2 and 3, the sequential stacking of the first electrode, dielectric thin film the second electrode, and the third electrode on the substrate is shown in Fig. 1. Note that claim 3 is anticipated provided the third electrode, the semiconductor thin film, the second electrode, and dielectric layer are sequentially stacked on the substrate as no order as to which layer is closest to the substrate is required or specified in either claims 2 or 3.

Regarding claim 4, the use of suitable substrate is contemplated and glass as such a suitable substrate material is shown.

Regarding claim 5, the semiconductor thin film being inorganic semiconductor is met as Hack teaches silicon as the semiconductor layer 24.

Regarding claim 7, the second electrode being divided to several electrode portions spaced apart from each other is met as shown in Fig. 1.

Note that regarding the recitation of current flowing as delineated in claims 1 lines 3-5, and the recitation regarding the electric field acts on the semiconductor thin film as in claim 7 line 3-4, such limitations would have been inherent in Hack, given that

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a vertical thin film transistor is obtained including structures of respective layers as delineated in Hack and that the positioning of the respective layers are as shown, particularly column 3 lines 19-40 (current path between the source and drain), and as shown in Fig. 1, vertical arrows. Additionally, the intended use of the gate for generating of electric field and spacing apart so that the gate field acts on the semiconductor thin film would not be unpatentable over the prior art for the reasons below. Such use of gate field would appear to be shown in Hack, column 3 lines 20-30 and as shown in Fig. 1, and otherwise would have been clearly capable of being performed by the vertical thin film transistor taught therein and the respective spaced apart electrodes 16; particularly given that the structures as delineated are anticipated by Hack as characterized above. Furthermore, the intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). A recitation directed to the manner in which a claimed apparatus is intended to be used does not distinguish the claimed apparatus from the prior art – if the prior art has the capability to so perform. See MPEP 2114 and *Ex parte Masham*, 2 USPQ2d 1647 (1987). The recitation of a new intended use for an old product does not make a claim to that old product patentable. *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997)

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hack taken with Carey.

Regarding the alternative substrate materials of silicon or plastic, such corresponds to well known suitable alternative substrate materials as evidenced by Carey, 5,817,550, column 7 lines 5-12.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hack as applied to claims 1-5 and 7 above, and further in view of Dodabalapur.

Hack is applied as above and does not recite the semiconductor material can be organic. Dodabalapur 6,215,130 teaches the semiconductor material in TFT includes

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inorganic material such as silicon or preferably organic material. See column 5 lines 32-66, column 6 lines 36-43.

It would have been obvious to one skilled in the art in practicing the Hack invention to have employed with inorganic or organic semiconductor material since such materials are well known in the art wherein the use of organic semiconductor materials would permit further reduction in device dimension.

Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Busta.

Re claims 1 and 3, Busta 4,949,141 teaches forming vertical structure thin film transistor including stacked structure of a substrate 10, third drain electrode 32, a semiconductor thin film 34, a second electrode 38, dielectric thin film 40, first gate electrode 42. See Fig. 2B, column 4 line 43 to column 5 line 30. Note that regarding the recitation of current flowing as delineated in claims 1 lines 3-5, such limitation would have been inherent in Hack, given that a vertical thin film transistor is obtained including structures of respective layers as delineated in Busta and that the positioning of the respective layers are as shown. Additionally, the intended use of the gate for generating of electric field and spacing apart so that the gate field acts on the semiconductor thin film would not be unpatentable over the prior art for the reasons below. Such use of gate field would appear to be shown in Busta Fig. 2B, column 4 lines 27-42, and otherwise would have been clearly capable of being performed by the vertical thin film transistor taught therein particularly given that the structures as delineated are anticipated by Busta as characterized above. Furthermore, the intended

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use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). A recitation directed to the manner in which a claimed apparatus is intended to be used does not distinguish the claimed apparatus from the prior art – if the prior art has the capability to so perform. See MPEP 2114 and *Ex parte Masham*, 2 USPQ2d 1647 (1987). The recitation of a new intended use for an old product does not make a claim to that old product patentable. *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997). Re claims 4 and 5, the substrate being glass and the inorganic semiconductor are taught, column 2 line 68 and portions delineated above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number (571) 272-1717. The examiner can normally be reached on M - F from 8 to 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.



Tuan Quach  
Primary Examiner